MACTEC

May 6, 2005

Mr. Norm Cozens
Post Office Box 682
Julian, California 92036

Subject: **Report of Groundwater Monitoring Results - April 2005**
Former Peg Leg Service Station
896 Palm Canyon Drive
Borrego Springs, California
SAMD H06285
RWQCB USTCMOBB1.0
MACTEC Project 70311-01-0079

Dear Mr. Cozens:

We are pleased to submit this Report of Groundwater Monitoring to assess natural attenuation at the former Peg Leg Service Station. This Report was prepared on your behalf in response to the County of San Diego, Site Assessment and Mitigation Division's (SAMD) request that a Monitoring Reports be prepared as part of the ongoing remediation of gasoline contaminated soil and groundwater at the site. The attached groundwater monitoring report has been prepared in accordance with guidelines presented in the San Diego SAM Manual (2004 edition) and discussions with SAMD personnel.

Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable environmental consultants practicing in this or similar localities at the time of service. This warranty is in lieu of all other warranties, expressed or implied. This report has been prepared for Mr. Norm Cozens, to be used solely in evaluating potential environmental implications at the subject site. The report has not been prepared for use by other parties, and may not contain sufficient information for purposes of other parties or other uses.

Please contact us if you have any questions or if we may be of further service.

Respectfully submitted,

MACTEC Engineering and Consulting, Inc.

Keith L. Carlson, REA
Senior Engineer

Christopher C. Loughman, PG 5453
Principal Geologist

(3 copies submitted)

MACTEC Engineering and Consulting, Inc.
9177 Sky Park Court, Suite A • San Diego, CA 92123
858-278-3600 • Fax: 858-278-5300
www.mactec.com

REPORT OF GROUNDWATER MONITORING

April 2005

FORMER PEG LEG SERVICE STATION

896 PALM CANYON DRIVE
BORREGO SPRINGS, CALIFORNIA

Prepared for:

Mr. Norm Cozens

Prepared by:

MACTEC Engineering and Consulting, Inc.

May, 2005

MACTEC Project 70311-01-0079

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SUMMARY

This report presents the results of groundwater monitoring conducted at the former Peg Leg Station in Borrego Springs, California to assess the effects of natural attenuation. The monitoring was conducted at monitoring wells MW-11 and MW-12 on April 12, 2005. Water level measurements were performed, groundwater samples were collected. As required by the County of San Diego Site Assessment and Mitigation Division (SAMD) and in accordance with the project's Corrective Action Plan (CAP) (MACTEC, 2002), the samples were analyzed by EPA Method 8021B for benzene, toluene, ethylbenzene, and xylenes (BTEX). Dissolved oxygen, carbon dioxide, and nitrate as nitrogen were also analyzed. The concentrations of all analytes were below maximum contaminate levels (MCLs). The concentrations of oxygen and carbon dioxide detected suggest that biological processes associated with the degradation of contaminants in the subsurface have been completed. Results show that the groundwater quality meets the CAP requirements at the site, therefore we recommend that monitoring the effectiveness of remediation of the site by natural attenuation should be terminated, the SAMD close the unauthorized release case for the site, and grant "Site Closure".

1.0 BACKGROUND

An unauthorized release of gasoline to the subsurface at the former Peg Leg Service Station prior to 1990 resulted from a leak in the underground fueling system formerly installed at site. The extent of the release has been investigated with the installation of 12 monitoring wells and numerous soil borings at the site. The release contaminated both soil and ground water. Gasoline was detected in the soil, benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons were detected in ground water during the various stages of site investigation.

As an interim remedial action to limit the potential for further ground water contamination, soil vapor extraction was conducted between 1995 and 1998 removing an estimated 40,000 pounds of gasoline from the subsurface soil.

In 2002, after a review of the prior assessment data, MACTEC (2002) prepared a corrective action plan (CAP) identifying natural attenuation as the recommended method for continued remediation of the site.

Between July 1990 and February 2004, the depth to ground water beneath the site increased from approximately 100 feet below ground surface (bgs) to 124 feet bgs. This resulted in the ground water table dropping below the bottom of all but two of the monitoring wells, MW-11 and MW-12.

Initially in 1990, Alton Geosciences estimated that the direction of the ground water gradient beneath the site was to the east. Subsequent monitoring indicated that the ground water gradient was generally southerly. A minimum of three ground water elevation measurements are necessary to establish a gradient. Since 2001, a true gradient could not be established because only MW-11 and MW-12 have continued to penetrate the ground water table.

2.0 SCOPE

This report presents the results of ground water monitoring conducted at monitoring wells MW-11 and MW-12 at the former Peg Leg Service Station in Borrego Springs, California. The monitoring was conducted on April 12, 2005. As required by the SAMD, the samples were analyzed by EPA Method 8021B for benzene, toluene, ethylbenzene, and xylenes (BTEX) at a State of California accredited laboratory. The samples were also analyzed for oxygen, carbon dioxide, and nitrate as nitrogen to further evaluate the effectiveness of remediation of the site by natural attenuation in accordance with the CAP.

3.0 MONITORING METHODS

3.1 GROUNDWATER SAMPLING

The groundwater sampling procedures for this sampling program were consistent with the procedures outlined in the CAP, dated June 28, 2002. Groundwater samples were collected using micro purging methodology, which is based on the method described in "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures", USEPA office of Research and Development, Office of Solid Waste and Emergency Response document EPA/540/S-95/504, dated December 1995. In this method, a submersible pump is operated at a very low flow rate to purge water from the well to minimize disturbance to the water column and surface. The purged water rises through the discharge pipe and exits the well through a discharge hose at the top of the well. The purged water is passed through a flow-cell containing a calibrated instrument that measures water quality parameters including pH, specific conductance, dissolved oxygen, oxidation reduction and temperature. A groundwater sample is collected upon stabilization of the water quality parameters (i.e., each parameter is within the criteria of Table 5-7 of the SAM (2004) Manual).

3.2 SAMPLE HANDLING

Groundwater samples were collected in laboratory-supplied containers, capped, labeled, and placed on ice in a cooler. The samples were transported under chain-of-custody control to American Environmental Testing Laboratories (AETL) for analysis. Appendix A contains the laboratory analytical results and chain-of-custodies.

3.3 SAMPLE ANALYSES

AETL analyzed the samples using EPA Method 8021B for benzene, toluene, ethylbenzene, and xylenes (BTEX). Other analytes including oxygen, carbon dioxide, and nitrate were analyzed using EPA Methods SM-4500-OG, SM-4500-CO_2, and 352.1 respectively.

3.4 GROUND WATER LEVEL MEASUREMENTS

Ground water levels were measured in the monitoring wells using an electronic water level meter. The meter consists of a probe attached to the end of a "measuring tape" with a sounding device. The meter sounds as soon as the probe encounters water in the well. The depth from the top of the well casing to water is then recorded in a logbook by the field personnel. Measurements were conducted in monitoring wells MW-11 and MW-12. Results are shown in Tables 2A and 2B.

4.0 RESULTS

4.1 LABORATORY ANALYSES

The results of the laboratory analyses performed for the ground water samples collected from monitoring wells MW-11 and MW-12 on April 12, 2005 are listed in Table 1. Results of all analytes are consistent with historical readings except Benzene. From January 11, 2002 to February 16, 2004, Benzene concentrations have decreased from 16.6µg/L to not detected in monitoring well MW-12 and from 2.4 µg/L to 1.3 µg/L in monitoring well MW-11. For the most recent sampling on April 12, 2005, Benzene was not detected in samples from either MW-11 or MW-12.

TABLE 1
ANALYTICAL RESULTS - BTEX, OXYGEN, CARBON DIOXIDE, AND NITRATE

SAMPLE	DATE	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylene (µg/L)	O_2 (mg/L)	CO_2 (mg/L)	NO_3 (mg/L)
MW-11	7/17/01	ND	ND	ND	ND	NA	NA	NA
	1/11/02	0.6j	ND	ND	ND	3.6	NA	NA
	5/15/03	2.4	ND	ND	ND	1.2	378	136
	10/9/03	2.2	ND	ND	ND	4.97	22.0	164
	2/16/04	1.3	ND	ND	ND	1.2	NA	NA
	4/12/05	ND	ND	ND	ND	7.79	ND	153
MW-12	7/17/01	ND	ND	ND	ND	NA	NA	NA
	1/11/02	16.6	ND	ND	ND	3.6	NA	NA
	5/15/03	NS	NS	NS	NS	NS	NS	NS
	10/9/03	ND	ND	ND	ND	4.74	17.6	129
	2/16/04	ND	ND	ND	ND	2.1	NA	NA
	4/12/05	ND	ND	ND	ND	8.85	ND	108

Prepared by: LX
Checked by: KLC

Notes:
NS – Not sampled: Monitoring well MW-12 had insufficient water to collect a groundwater sample on May 15, 2003. No analyses could be performed.
ND – Not detected in concentrations above the Practical Quantification Limit
NA – Not analyzed
NE – Not established.
MCL – Maximum Contaminant Level (California Department of Health Primary Drinking Water.)
J – Results for these constituents are trace amounts between the Method Detection Limit of 0.5µg/L and the Practical Quantification Limit of 1.0 µg/l.

4.2 GROUNDWATER ELEVATIONS

Groundwater elevations calculated based on groundwater level measurements are presented in Tables 2A and 2B. The data indicate that the groundwater elevations have decreased approximately 24 feet beneath the site since 1990. Since January 2002, only monitoring wells MW-11 and MW-12 continued to penetrate the groundwater table. For reference, monitoring well construction details are presented in Appendix B.

TABLE 2A
GROUNDWATER SURFACE ELEVATIONS

(feet above mean sea level)

Date	MW-11			MW-12			GW Gradient [(b)] (feet/foot)
	Depth to GW	Elevation TOC 5/22/04	GW Elevation	Depth to GW	Elevation TOC 5/22/04	GW Elevation	
July 17, 2001	118.58	551.87	433.29	120.56	553.38	432.82	-0.00435
January 11, 2002	122.70	551.87	429.17	124.20	553.38	429.18	0.00009
May 15, 2003	122.70	551.87	429.17	124.18[(a)]	553.38	429.20	0.00028
October 8, 2003	122.71	551.87	429.16	124.15	553.38	429.23	0.00065
February 16, 2004	123.38	551.87	428.49	124.85	553.38	428.53	0.00037
April 29, 2004	123.69	551.87	428.18	125.15	553.38	428.23	0.00046
April 12, 2005	125.65	551.87	426.22	127.24	553.38	426.14	-0.00074

Prepared by: KLC
Checked by: LX

Notes: GW = Groundwater
TOC = Top Of Case

(a) Estimated depth to groundwater. Well obstruction prevented measurement.
(b) The distance between MW-11 and MW-12 is 108 feet.

TABLE 2B

GROUNDWATER SURFACE ELEVATION

(feet above mean sea level)

Date	MW-1 (a)	MW-2 (a)	MW-3 (a)	MW-4 (b)	MW-5 (b)	MW-6 (b)	MW-7 (b)	MW-8 (b)	MW-9 (b)	MW-10 (b)	MW-11 (c)	MW-12 (c)
7/90	452.53	453.11	451.36	–[2]	–	–	–	–	–	–	–	–
7/91	451.73	451.70	451.87	–	–	–	–	–	–	–	–	–
10/91	451.43	451.49	451.68	–	–	–	–	–	–	–	–	–
12/91	451.56	451.58	451.82	–	–	–	–	–	–	–	–	–
6/92	450.49	450.51	450.73	–	–	–	–	–	–	–	–	–
11/92	449.93	450.03	450.24	–	–	–	–	–	–	–	–	–
2/93	450.23	450.24	450.28	450.72	450.57	450.44	450.35	450.49	450.53	450.47	–	–
6/93	449.47	449.43	449.51	449.64	449.87	449.77	449.47	449.67	449.78	449.50	–	–
12/93	449.45	449.33	449.42	449.59	449.68	449.65	449.37	449.59	449.16	449.36	–	–
10/94	447.86	447.83	447.92	448.07	448.23	448.24	447.89	448.13	448.19	447.87	–	–
1/95	447.72	447.69	447.74	447.96	448.11	448.09	447.78	448.05	448.08	447.79	–	–
4/95	447.24	447.19	447.24	447.38	447.49	447.47	447.24	447.42	447.46	447.17	–	–
7/95	446.67	446.58	446.66	446.76	446.81	446.81	446.62	446.77	446.82	446.42	–	–
11/95 (d)	446.03	446.00	446.06	446.23	446.26	446.21	446.05	446.20	446.22	DRY	–	–
1/96	445.85	445.82	445.83	446.02	446.09	446.03	445.86	446.04	446.06	445.74	–	–
6/96	444.97	444.86	444.89	444.92	444.91	444.99	444.84	444.84	444.99	DRY	–	–
1/97	444.94	443.83	444.00	443.98	443.62	444.07	444.00	444.62	444.18	DRY	–	–
10/97	DRY	442.11	442.18	442.32	442.34	DRY	442.18	442.28	442.42	DRY	–	–
11/98	DRY	440.13	440.2	440.04	441.03	DRY	DRY	DRY	440.55	DRY	–	–
7/01 (e)	DRY	434.71	434.81	DRY	DRY	DRY	DRY	DRY	DRY	DRY	433.29	432.82
1/02	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	429.17	429.18
5/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	429.17	429.20 (f)
10/03	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	429.16	429.23
2/04	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	428.49	428.53
4/04	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	428.18	428.23
4/05	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	426.22	426.14

Prepared by: LX
Checked by: KLC

Notes:

(a) Data from Alton Geoscience.
(b) Monitoring well installed in 1993.
(c) Elevations based on results of a new survey of the top-of-casing elevations performed 11-2-95.
(d) Unable to measure depth to water due to presence of an obstruction in the well. Elevation presented is for the top of the obstruction.
(e) MW-11 and MW-12 monitoring wells installed in 2001.
(f) Estimated depth to groundwater, well obstruction prevented measurement.

5.0 CONCLUSIONS AND RECOMMENDATIONS

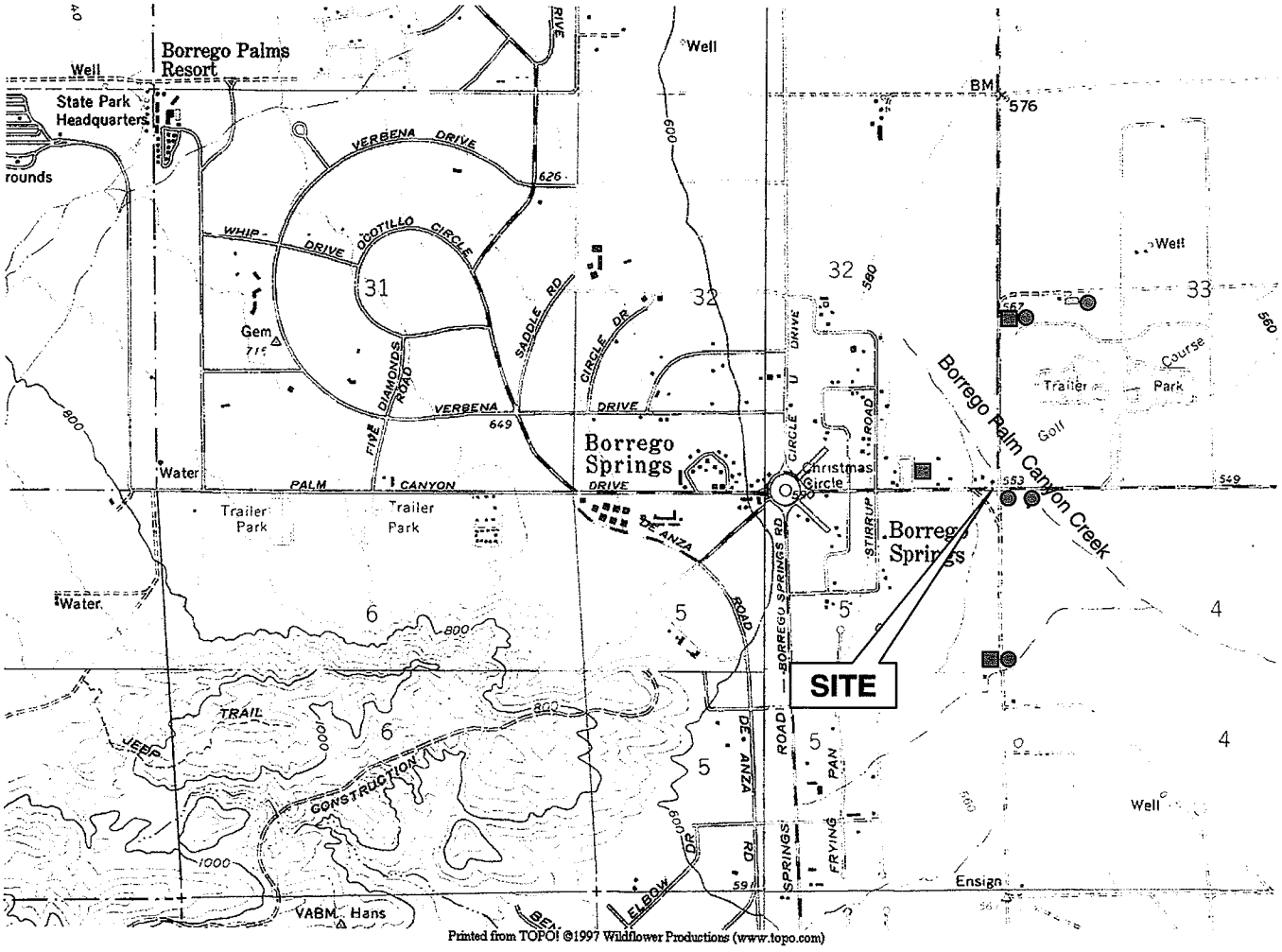
For MW-11, the only parameter that has been detected during previous events was Benzene, which shows a decreasing trend, from 2.4µg/L detected on 5/15/03 to below detection limit (0.5µg/L) on 4/12/05. For MW-12, the only detected Benzene concentration was reported as 16.6µg/L on 1/11/02. No other BTEX constituents were detected in groundwater samples collected from either MW-11 or MW-12. Benzene concentration is now in compliance with the federal MCL (5.0µg/L) as well as the California MCL (1.0µg/L). Also, as indicators of biological activities, oxygen and carbon dioxide were reported as around 8mg/L and not detected respectively, this suggests that the biological processes associated with the degradation of contaminants in the subsurface at the site have been completed.

In conclusion, all the contaminants of concern are below both federal MCL and California MCL. Therefore we recommend the SAMD close the unauthorized release case for this site and grant "Site Closure". Once site closure has been granted, we recommend abandoning all wells constructed as part of this project.

6.0 REFERENCES

- California Regional Water Quality Control Board – Central Valley Region, A Compilation of Water Quality Goals, dated August 2000.
- California Regional Water Quality Control Board – Colorado River Region, Water Quality Control Plan for the Colorado River Basin (7), dated 2002.
- Law/Crandall Inc., Remedial Action Work Plan, Former Peg Leg Service Station, 896 Palm Canyon Drive, Borrego Springs, California, dated June 1994.
- Law/Crandall Inc., Report of Verification Sampling Study, Former Service Station, 896 Palm Canyon Drive, Borrego Springs, California, dated February 1999.
- Law/Crandall Inc., Ground Water Monitoring Report, November 1995, Gasoline Service Station, 896 Palm Canyon Drive, Borrego Springs, California, dated December 11, 1995.
- MACTEC Engineering and Consulting, Inc., Corrective Action Plan for Former Peg Leg Service Station, 896 Palm Canyon Drive, Borrego Springs, California, dated June 28, 2002.
- San Diego County, Department of Health Services, Site Assessment and Mitigation Manual, dated 2004.
- Wiedemeier, T., Wilson, J.T. and Kampbell, D.H., Miller, R.N. and Hansen, J.E., Technical Protocol for Implementing Intrinsic Remediation with Long-Term Monitoring for Natural Attenuation of Fuel Contamination Dissolved in Groundwater, Volume I, Air force Center for Environmental Excellence Technology Transfer Division, Brooks Air Force Base, San Antonio, TX., 1995.

FIGURES



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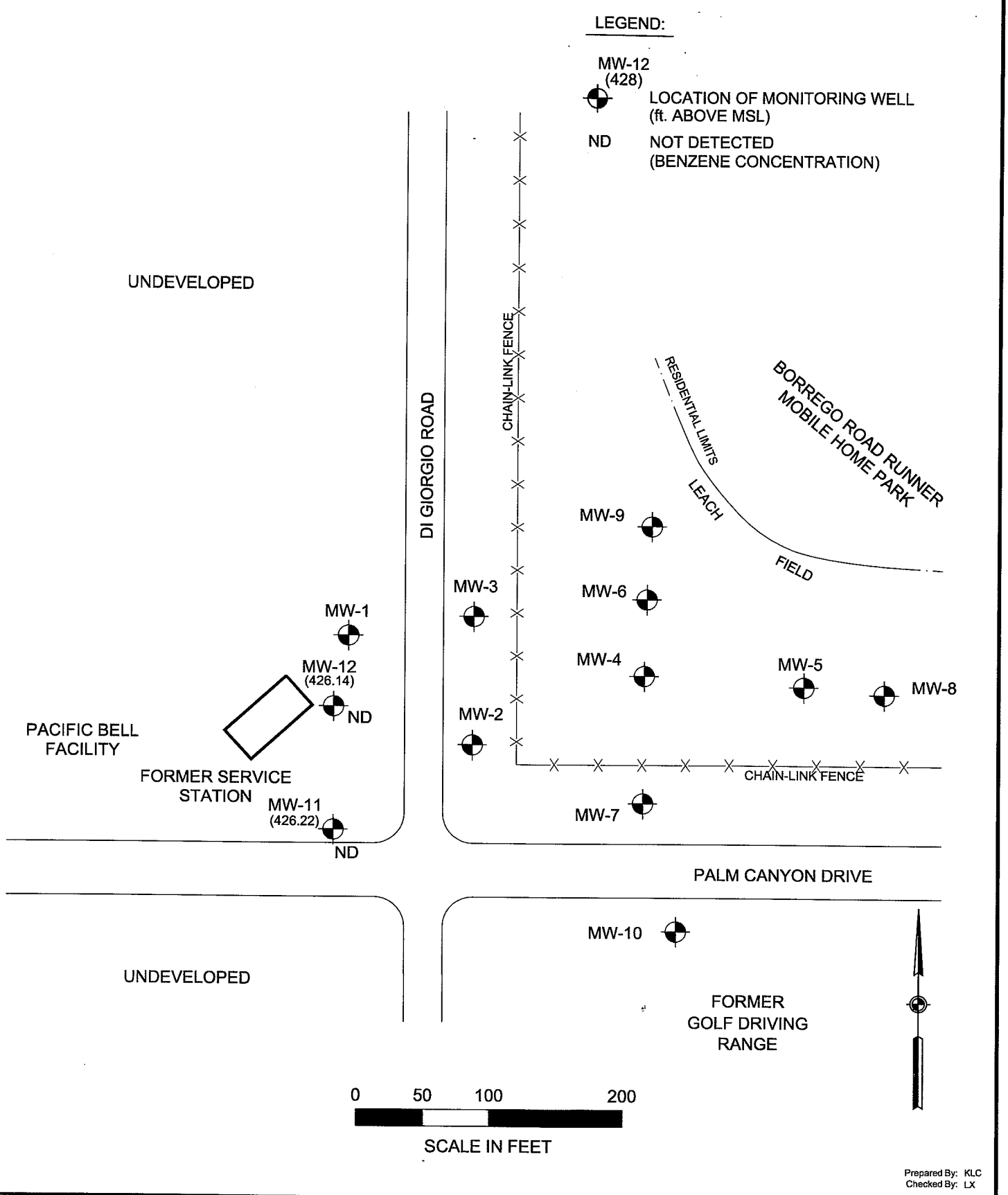
LEGEND

- Domestic well
- Irrigation well with pump

Not To Scale

Prepared By: KLC
Checked By: LX

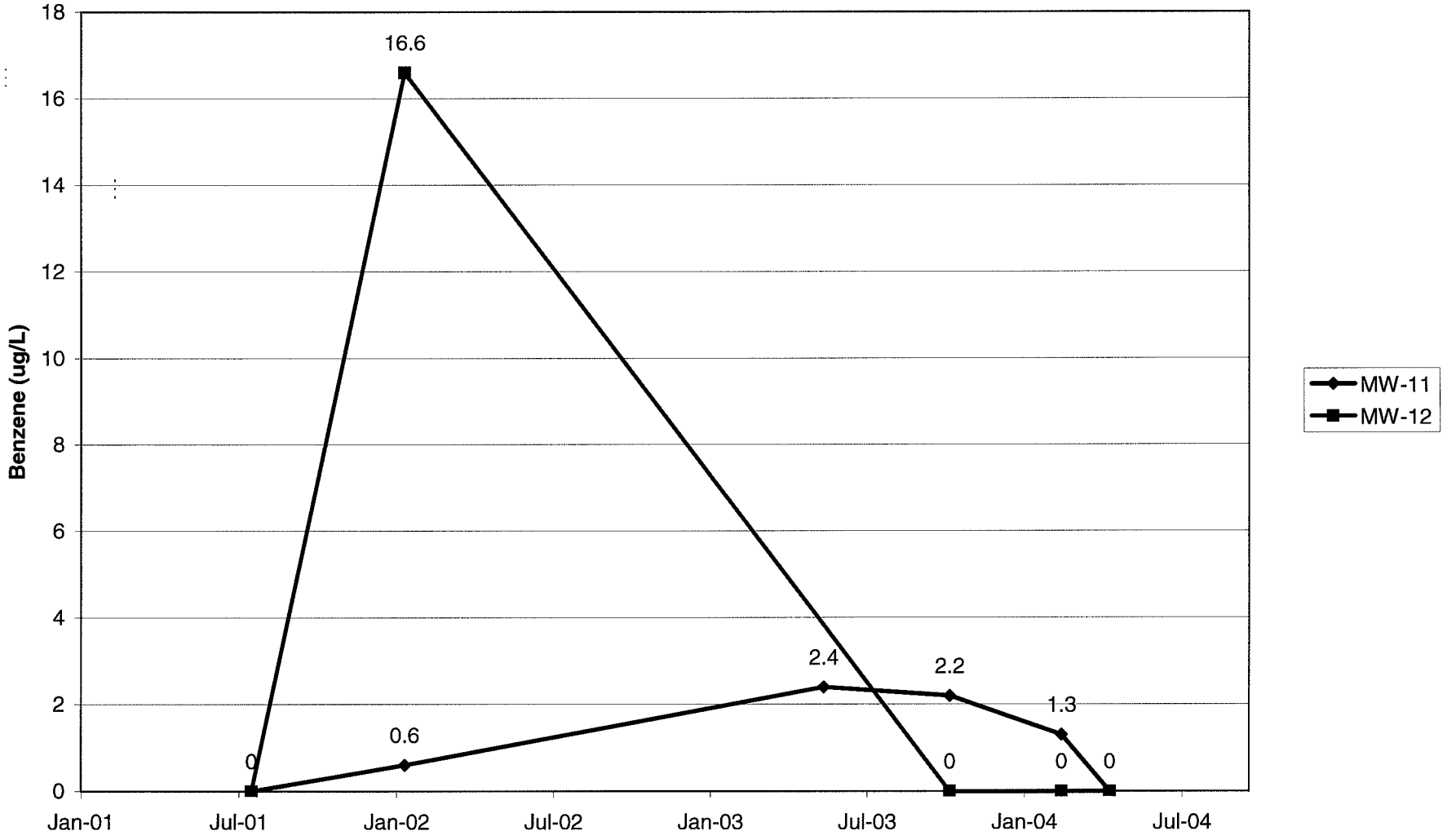
Former Peg Leg Service Station **896 Palm Canyon Drive** **Borrego Springs, CA**	MACTEC MACTEC Engineering and Consulting, Inc.	**SITE LOCATION MAP** Project: 70311-01-0079 Figure 1



Prepared By: KLC
Checked By: LX

Former Peg Leg Service Station 896 Palm Canyon Drive Borrego Springs, CA	MACTEC MACTEC Engineering and Consulting, Inc.	APRIL 2005 GROUNDWATER ELEVATION AND BENZENE CONCENTRATION MAP PROJECT: 70311-01-0079 FIGURE: 2

FIGURE 3
BENZENE CONCENTRATION VS. TIME



APPENDIX A

LABORATORY DATA

American Environmental Testing Laboratory Inc.

2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

Ordered By

MACTEC
9177 Sky Park Ct., Ste A
San Diego, CA 92123-

Number of Pages	7
Date Received	04/13/2005
Date Reported	04/22/2005

Telephone: (858)278-3600
Attention: Keith Carlson

Job Number	Order Date	Client
33065	04/13/2005	LC,SD

Project ID: 70311-1-0020
Project Name: Cozens
Site: 896 Palm Canyon Drive
Borrego Springs, CA 92004

Enclosed please find results of analyses of 3 water samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.
2834 North Naomi Street Burbank, CA 91504 • DOHS NO: 1541, LACSD NO: 10181
Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840

CHAIN OF CUSTODY RECORD

Nº 37498

AETL JOB No. 330165 Page 1 of 1

COMPANY: MACTEC PHONE: 858 278 3600
PROJECT MANAGER: KEITH CARLSON FAX: 858 278 5300
PROJECT NAME: COZENS PROJECT #: 70311-1-0020
SITE NAME AND ADDRESS: 896 PALM CANYON

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	DO	BTEX 8021	NO3	SO4	TEST INSTRUCTIONS & COMMENTS
1	MW 11	33065-01	APR 12	12:00	W	4x40ml	HCl x2		X		X	
2	MW 11	↓	APR 12	12:00	W	1x500ml	NA	X		X		
3	MW 12	33065-02	" "	12:30	W	4x 40ml	HCl x2		X		X	
4	MW 12	↓	" "	12:30	W	1x500ml	NA	X		X		
5	TRIP BLANK	33065-03	" "	12:30	W	1x 40ml	HCl		X			
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	12	PROPERLY COOLED: (Y) / N / NA	
CUSTODY SEALS: (Y) / N / NA		SAMPLES INTACT: (Y) / N / NA	
RECEIVED IN GOOD COND.: (Y) / N		SAMPLES ACCEPTED: (Y) / N	

TURN AROUND TIME

☐ NORMAL ☐ RUSH ☐ SAME DAY ☐ 24 HRS. ☐ 48 HRS. ☐ 72 HRS.

	1.	2.	3.
RELINQUISHED BY SAMPLER:	Signature:	RELINQUISHED BY: Signature:	RELINQUISHED BY: Signature:
	Printed Name: SEAN PORTER	Printed Name:	Printed Name:
	Date: APR 12 Time: 3:00 PM	Date: Time:	Date: Time:
RECEIVED BY:	Signature:	RECEIVED BY: Signature:	RECEIVED BY LABORATORY: Signature:
	Printed Name:	Printed Name:	Printed Name: JEWELL
	Date: Time:	Date: Time:	Date: 4-13-05 Time: 1:15pm

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

American Environmental Testing Laboratory Inc.

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Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

ANALYTICAL RESULTS

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MACTEC
9177 Sky Park Ct., Ste A
San Diego, CA 92123-

Telephone: (858)278-3600
Attn: Keith Carlson

Site

896 Palm Canyon Drive
Borrego Springs, CA 92004

Page: 2

Project ID: 70311-1-0020
Project Name: Cozens

AETL Job Number	Submitted	Client
33065	04/13/2005	LC,SD

Method: 8021B, Aromatic Volatiles by GC

QC Batch No: 041405

Our Lab I.D.			Method Blank	33065.01	33065.02	33065.03	
Client Sample I.D.				MW11	MW12	Trip Blank	
Date Sampled				04/12/2005	04/12/2005	04/12/2005	
Date Prepared			04/14/2005	04/12/2005	04/12/2005	04/12/2005	
Preparation Method			5035A	5035A	5035A	5035A	
Date Analyzed			04/14/2005	04/14/2005	04/14/2005	04/14/2005	
Matrix			Aqueous	Aqueous	Aqueous	Aqueous	
Units			ug/L	ug/L	ug/L	ug/L	
Dilution Factor			1	1	1	1	
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	
Benzene	0.5	0.5	ND	ND	ND	ND	
Ethylbenzene	0.5	0.5	ND	ND	ND	ND	
Toluene (Methyl benzene)	0.5	0.5	ND	ND	ND	ND	
Xylenes (Total)	1.0	1.0	ND	ND	ND	ND	
Our Lab I.D.				**33065.01**	**33065.02**	**33065.03**	
Surrogates	**%Rec.Limit**		**% Rec.**	**% Rec.**	**% Rec.**	**% Rec.**	
Bromofluorobenzene	75-125		100	100	100	100	
Trifluorotoluene	75-125		104	103	103	103	

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Tel: (888) 288-AETL • (818) 845-8200 • Fax: (818) 845-8840 • www.aetlab.com

ANALYTICAL RESULTS

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MACTEC
9177 Sky Park Ct., Ste A
San Diego, CA 92123-

Telephone: (858)278-3600
Attn: Keith Carlson

Site

896 Palm Canyon Drive
Borrego Springs, CA 92004

Page 3
Project ID: 70311-1-0020
Project Name: Cozens

AETL Job Number	Submitted	Client
33065	04/13/2005	LC,SD

Analytes			Nitrate as Nitrogen	Carbon dioxide (Dissolved)	Oxygen, Dissolved	
Methods of Analyses			352.1	SM-4500-CO2	SM-4500-OG	
Date Prepared			04/13/2005	04/13/2005	04/13/2005	
Date Analyzed			04/13/2005	04/13/2005	04/13/2005	
Matrix			Aqueous	Aqueous	Aqueous	
QC Batch Number			041305	041305	041305	
Units			mg/L	mg/L	mg/L	
Method Detection Limit			0.05	1.0	0.10	
Practical Quantitation Limit			0.10	2.0	0.10	
Dilution Factor			1	1	1	
Lab ID	**Sample ID**	**Sampled**	**Results**	**Results**	**Results**	
33065.01	MW11	04/12/2005	153	ND	7.79	
33065.02	MW12	04/12/2005	108	ND	8.85	
N/A	Method Blank	04/12/2005	ND	ND	NA	

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ANALYTICAL RESULTS

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9177 Sky Park Ct., Ste A
San Diego, CA 92123-

Site

896 Palm Canyon Drive
Borrego Springs, CA 92004

Telephone: (858)278-3600
Attn: Keith Carlson

Page: **4**
Project ID: 70311-1-0020
Project Name: Cozens

AETL Job Number	Submitted	Client
33065	04/13/2005	LC,SD

Method: 352.1, Nitrate as N, Colorimetric, Brucine (EPA/600/4-79-020)

QUALITY CONTROL REPORT

QC Batch No: 041305 Sample Spiked: 33065.01 QC Prepared: 04/13/2005 QC Analyzed: 04/13/2005 Units: mg/L

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Nitrate as Nitrogen	0.0	0.50	0.45 X	89	0.50	0.45 X	90	1.1	80-120	<15

QC Batch No: 041305 Sample Spiked: 33065.01 QC Prepared: 04/13/2005 QC Analyzed: 04/13/2005 Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Nitrate as Nitrogen	153	150	2.0	<15						

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ANALYTICAL RESULTS

Ordered By

MACTEC
9177 Sky Park Ct., Ste A
San Diego, CA 92123-

Site

896 Palm Canyon Drive
Borrego Springs, CA 92004

Telephone: (858)278-3600
Attn: Keith Carlson

Page: 5
Project ID: 70311-1-0020
Project Name: Cozens

AETL Job Number	Submitted	Client
33065	04/13/2005	LC,SD

Method: 8021B, Aromatic Volatiles by GC

QUALITY CONTROL REPORT

QC Batch No: 041405 Sample Spiked: 041405 QC Prepared: 04/14/2005 QC Analyzed: 04/14/2005 Units: ug/L

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Benzene	0.0	50.00	54.50	109	50.00	55.50	111	1.8	75-125	<20
Ethylbenzene	0.0	50.00	53.50	107	50.00	55.00	110	2.8	75-125	<20
Toluene (Methyl benzene)	0.0	50.00	50.50	101	50.00	51.50	103	2.0	75-125	<20
o-Xylene	0.0	50.00	52.50	105	50.00	54.00	108	2.8	75-125	<20
m,p-Xylenes	0.0	100.00	106.00	106	100.00	108.00	108	1.9	75-125	<20

QC Batch No: 041405 Sample Spiked: 041405 QC Prepared: 04/14/2005 QC Analyzed: 04/14/2005 Units: ug/L

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Benzene	50.00	54.00	108	75-125						
Ethylbenzene	50.00	54.00	108	75-125						
Toluene (Methyl benzene)	50.00	50.50	101	75-125						
o-Xylene	50.00	53.00	106	75-125						
m,p-Xylenes	100.00	106.00	106	75-125						

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ANALYTICAL RESULTS

Ordered By

MACTEC
9177 Sky Park Ct., Ste A
San Diego, CA 92123-

Site

896 Palm Canyon Drive
Borrego Springs, CA 92004

Telephone: (858)278-3600
Attn: Keith Carlson

Page: 6
Project ID: 70311-1-0020
Project Name: Cozens

AETL Job Number	Submitted	Client
33065	04/13/2005	LC,SD

Method: SM-4500-CO2, Carbon Dioxide (Titrimetric, Standard Methods 19th Ed.)

QUALITY CONTROL REPORT

QC Batch No: 041305 Sample Spiked: 33065.01 QC Prepared: 04/13/2005 QC Analyzed: 04/13/2005 Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Carbon dioxide (Dissolved)	ND	ND	<1	<20						

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ANALYTICAL RESULTS

Ordered By

MACTEC
9177 Sky Park Ct., Ste A
San Diego, CA 92123-

Site

896 Palm Canyon Drive
Borrego Springs, CA 92004

Telephone: (858)278-3600
Attn: Keith Carlson

Page: **7**
Project ID: 70311-1-0020
Project Name: Cozens

AETL Job Number	Submitted	Client
33065	04/13/2005	LC,SD

Method: SM-4500-OG, Total Dissolved Oxygen (Std. Methods; 19th ed.)

QUALITY CONTROL REPORT

QC Batch No: 041305 Sample Spiked: 33065.01 QC Prepared: 04/13/2005 QC Analyzed: 04/13/2005 Units: mg/L

Analytes	SM Result	SM DUP Result	RPD %	SM RPD % Limit						
Oxygen, Dissolved	7.79	7.79	<1	<15						

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Data Qualifiers and Descriptors

Data Qualifier:

*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.
MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate

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Data Qualifiers and Descriptors

ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

APPENDIX B

MONITORING WELL CONSTRUCTION DETAILS

MONITORING WELL CONSTRUCTION DETAILS

Well Number	Casing Elevation (ft. above msl)	Total Depth (ft.)	Casing Interval (ft.)	Screen Interval (ft.)
MW-1	553.29	109.80	0-90	90-110
MW-2	552.28	118.68	0-90	90-120
MW-3	552.30	120.04	0-90	90-120
MW-4	553.48	111.90	NA	NA
MW-5	552.22	114.75	NA	NA
MW-6	552.61	110.29	NA	NA
MW-7	551.20	114.21	NA	NA
MW-8	551.64	113.16	NA	NA
MW-9	551.72	113.40	NA	NA
MW-10	551.04	114.30	NA	NA
MW-11	551.87	134	0-114	114-134
MW-12	553.38	134	0-114	114-134

Notes:

NA = Not available
Ft = foot
Msl= mean sea level
Well construction details for MW-1 through MW-10 from Law/Crandall 1995.